REMARKS

Claims 1-14 are pending in the application.

Claims 1-14 are rejected under 35 U.S.C. 103(a).

Applicant requests reconsideration and allowance of the claims in light of the above amendments and following remarks.

Claim Rejections- 35 USC § 103

Claims 1, 2, and 4-14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over KR 1100150271 to Ha et al. ("Ha") in view of Protniuk et al. (J of Pharm Sci, Vol. 91, No. 1, (2002) 111-116).

Claim 3 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Ha et al. (KR 110150271) in view of Protniuk et al. (J of Pharm Sci, Vol. 91, No. 1, (2002) 111-116), the combination further in view of Morre et al. (US 6,410,052).

Applicant respectfully traverses the rejections.

The Final Office Action dated September 9, 2010 ("Final Office Action") argues that "If the prior art structure is capable of performing the intended use, then it meets the claim. Then, the Final Office Action goes on to state that "the composition of Ha et al has an intermediate which is an emulsion with all the instantly claimed components." In detail, the Final Office Action states that Ha results in a composition of 2g EGCG with 20g chitosan and 5g of sorbitol, which results in a component ratio of 1:12.5. The total percent by weight of each component would be about 0.2% EGCG, 2 % chitosan, and 0.5% sorbitol....The claims range results in a ratio of EGCG to polymer mixture of 1:50 to 1:0.2."

However, the above component ratios of Chitosan and EGCG and the total percent by weight of each component disclosed on the Final Office Action appear incorrect. Based on the description of Ha, e.g., "adding chitosan 20g of which de-acetylation degree is 80% in 2% acetic acid solution 980g and dissolving; adding the solution of green tea flavonoid, (-)-epigalocatechingalate(EGCG) 2g, glucosylceramide 1g, and distilled water 10g to the chitosan solution; dissolving sorbitan triolate 5g in cyclohexane 600g, adding to the chitosan solution, and emulsifying for 3minutes, at 35deg.C, 7000rpm to get even w/o emulsion," the following table has been prepared.

[Ingredients of the chitosan-included emulsion of Ha patent]

INGREDIENTS		CONTENTS (gram)	RATIO (%)
Chitosan		**20**	**0.0124**
EGCG		**2**	**0.0012**
Other solutes	Sorbitan Triolate	5	0.0031
	Glucosylceramide	1	0.0006
Solvents	Acetic Acid Solution	980	0.6057
	Distilled Water	10	0.0062
	Cyclohexane	600	0.3708
Total		1618	100

In particular, the emulsion of Ha also includes acetic acid, distilled water and cyclohexane as solvents as disclosed above. Therefore, Applicant believes that the total percent by weight of components should be calculated shown in the table above, e.g., chitosan being 0.0124% and EGCG being 0.0012% of the total content including the solvents, rather than 0.2% EGCG, 2 % chitosan alleged in the Final Office Action.

Therefore, the chitosan-included emulsion of Ha patent cannot be used to teach or suggest all of the limitations of Claim 1, i.e., "0.1~25.0% by weight of Epigallocatechin gallate, 0.1~5.0% by weight of a mixture of a cationic polymer and an anionic polymer, 0.1~10.0% by weight of antioxidant, and water or the mixture of water and a hydrophilic solvent in a remainder."

Further, Ha merely implies that adding EGCG to the chitosan microsphere can improve the state of skin or hair, but nowhere does Ha teach or suggest stabilization of EGCG in water phase. On the contrary, as explained in the present application at page 3, lines 20-23, when EGCG is less than 0.1 wt%, the unreacting cationic polymer interacts with the other components

in cosmetics or medical supplies, so as to be educed. The emulsion of Ha patent includes only 0.0012 wt% (less than 0.1 wt%). Therefore, it is uncertain whether EGCG can be stabilized even if the composition disclosed in Ha is used. This is especially true because Ha does not teach or suggest the stabilization of EGCG in the chitosan-included emulsion.

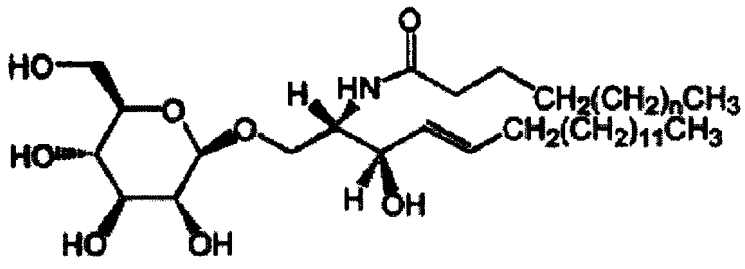
Therefore, for the reasons discussed above, the rejection does not present a *prima facie* obviousness as the prior art references do not teach or suggest all of the limitations of claim 1 and there is no reasonable expectation of success. *See* MPEP 2143.02.

Furthermore, according to MPEP 2144.09, "if the prior art merely discloses compounds as intermediates in the production of a final product, one of ordinary skill in the art would not ordinarily stop the reference synthesis and investigate the intermediate compounds with an expectation of arriving at claimed compounds which have different uses. *In re Lalu*, 747 F.2d 703, 223 USPQ 1257 (Fed. Cir. 1984)."

As discussed above, there is nothing in Ha suggesting that the use of *intermediate* compound as a composition for stabilizing EGCG in water phase. Thus, the prior art structure is *not* capable of performing the intended use contrary to the Final Office Action. Therefore, it cannot meet the claim.

In addition, the Final Office Action alleges that sorbitan triolate of Ha corresponds to sorbitol which can be used as a hydrophilic solvent in the claimed invention. However, sorbitan triolate, which is one of sobitan fatty esters, has different properties that those of sorbitol. That is, Applicant believes that sorbitan triolate cannot be used as a hydrophilic solvent. Especially, sorbitol has the chemical formula such as "$CH_2OH(CHOH)_4CH_2OH$," but sorbitan triolate has a different chemical formula from sorbitol, as shown in the attached Exhibit.

Moreover, the emulsion of Ha also includes **hydrophobic** solvent such as cyclohaxane. In this regard, Applicant respectfully submits that Ha has nothing to do with stabilization of EGCG in water or hydrophilic environment. In addition, chitosan-included emulsion of Ha patent does not include any ionic polymer to stabilize EGCG in water phase, because glucosylceramide is not an ionic polymer, as shown in its chemical formula below.



1

D-glucosylceramide

The PTO has the burden under section 103 to establish a *prima facie* case of obviousness." *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988) (citing *In re Piasecki,* 745 F.2d 1468, 1471-72 (Fed. Cir. 1984)). A *prima facie* case of obviousness requires a showing that ***each and every element*** of the claims is present in some combination of prior art references, or that the claimed invention would be an obvious modification of those references. *See, e.g., In re Kotzab*, 217 F.3d 1365, 1369-70 (Fed. Cir. 2000); *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998).

In addition, "***[a]ll words in a claim must be considered*** in judging the patentability of that claim against the prior art." *Application of Wilson*, 424 F.2d 1382, 1385 (CCPA 1970) (emphasis added).

Therefore, the rejection does not present a *prima facie* case of obviousness as the prior art does not teach or disclose all of the limitations of claim 1 and there is no reasonable expectation of success. Accordingly, claim 1 is in condition for allowance. Also, claims 2-7 and 12-14, which depend from allowable claim 1, are also in condition for allowance for their dependency and their own merits.

With respect to claim 8, EGCG is dissolved in water phase. Then, an ionic polymer is added to the aqueous EGCG solution. In other words, EGCG is dissolved in water phase to be anionic, thus reacting with a cationic polymer to formulate a stable acid-base complex. Further, cationic hydrogen of phenol group of EGCG not dissociating from water or hydrophilic solvent reacts with an anionic polymer to be encapsulated. Accordingly, EGCG can be stabilized in water phase.

In the preparation of chitosan-included emulsion according to Ha, chitosan is dissolved in an acetic acid solution. The water solution including EGCG is then added to the chitosan

solution. However, after chitosan is initially dissolved in acetic acid, it is impossible for chitosan to react with EGCG to form a stabe acid-base complex. Therefore, Applicant believes that EGCG cannot be stabilized in chitosan-included emulsion of Ha. For these reasons, claim 8 is in condition for allowance and its dependent claims 9-11 are also in condition for allowance at least for their dependency and their own merits.

CONCLUSION

For the foregoing reasons, reconsideration and allowance of all pending claims of the application as amended is requested. The Examiner is encouraged to telephone the undersigned at (503) 896-2643 if it appears that an interview would be helpful in advancing the case. Please charge any deficiency or overpayment to deposit account number 50-5049.

Customer No. 83219

Respectfully submitted,

Hosoon Lee
Reg. No. 56,737

Portland IP Law LLC
9600 SW Oak St., Suite 525
Tigard, OR 97223
Phone) 503-896-2643
Fax) 503-517-9919

...bean oil, epoxidized acrylate

...22-14-4]

... 1.04 g/mL, 25 °C

... 1.484

...ains 8,500 ppm monomethyl ether hydroquinone as inhibitor

... R: 43 S: 26-36 EC No. 294-415-6 Fp: 113 °C (235 °F)

...333-250ML	glass btl	250 mL	56,000
...333-1L	glass btl	1 L	116,000

...an® 20

...itan monolaurate

...38-39-2]

...y acid composition: Lauric acid (C12:0) approx. 50%; balance ...arily myristic (C14:0), palmitic (C16:0) and linolenic (C18:3) ...ds

... No. 215-663-3 Fp: 113 °C (235 °F)

...35-250ML	250 mL	52,000
...35-1L	1 L	181,000

...an® 60

...itane monostearate

...38-41-6]

...y acid composition: Stearic acid (C18:0) approx. 50%; balance ...arily palmitic acid (C16:0).

... No. 215-664-9 Fp: 150 °C (302 °F)

...10-250G	250 g	51,000
...0-1KG	1 kg	151,000

...an® 65

...itan tristearate

...658-19-5]

... value ... 2.1±1.0

... No. 247-891-4 Fp: 150 °C (302 °F)

...547-250G	250 g	34,000
...547-1KG	1 kg	109,000

...an® 80

...itane monooleate

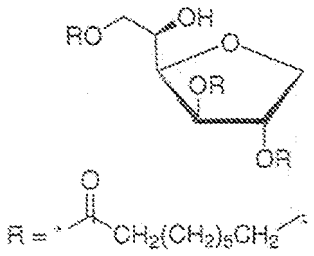
...38-43-8]

...y acid composition: Oleic acid (C18:1) ≤ 60%; balance ...arily linoleic (C18:2), linolenic (C18:3) and palmitic (C16:0) ...ds

... No. 215-665-4 Fp: 113 °C (235 °F)

Span® 80, see Span® 80 Page 2415

Span® 85



Sorbitane trioleate

[26266-58-0]

Fatty acid composition: Oleic acid (acid (C18:2) approx. 7%; linolenic palmitoleic acid (C16:1) approx. 7% acid (C16:0).

R: 38 S: 26 EC No. 247-569-3

S7135-250ML	
S7135-1L	

(–)-Sparteine, 99%

(–)-Lupinidine

[90-39-1] *Merck* **13**,8810; *Beil.* **2** II,97; *Fieser* **17**,318 $C_{15}H_{26}N_2$ FW

bp ... 137-138 °C/1 mmHg *n*

density ... 1.02 g/mL, 25 °C

Organocatalyst compexed with cop syntheses of nitro aldols (Henry rea Controls asymmetric lithiation/alkyl diphenylmethanes[2] and enantiosel ration of chiral phosphine ligands.[3] $[\alpha]_D^{20}$ –16.5°, c = 10 in ethanol

Lit. cited: 1. *Chem. Commun.* 4006 2. *Tet. Lett.* **45**, 5481-5483 (2004) 3. *Synthesis* **9**, 1353-1358 (2004)

R: 20/21/22 S: 36 EC No. 201-9

415316-10ML	glass btl
415316-100ML	glass btl

(–)-Sparteine sulfate pentahydr

(–)-Sparteine sulfate salt; Lupinidin

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